

**REMARKS****STATUS OF CLAIMS**

Claims 1-7 are pending herein and claims 5 and 6 are withdrawn.

Claims 1, 2, 4 and 7 are rejected.

Claim 3 is objected to but are indicated to be allowable if suitably rewritten to be dependent upon a rejected base claim or if rewritten to independent form including all the limitations of the respective base and any intervening claims.

**REJECTION OF CLAIMS 1-2, 4 AND 7 UNDER 35 U.S.C 103(A) AS BEING UNPATENTABLE OVER POTTER ET AL. (USP 6,533,587) IN VIEW OF REIMER (USP 4,498,717)**

The rejection is respectfully traversed.

**INDEPENDENT CLAIMS 1 AND 2**

Claim 1 recites:

the electronic parts first mounting board of the first board unit and the electronic parts second mounting board of the second board unit facing each other, being located at different heights relative to the mother board, and overlapping each other when seen from the tops of the first and second daughter boards.

(Emphasis added)

Claim 2 recites:

the electronic parts first mounting board of the first board unit and the electronic parts second mounting board of the second board unit facing each other, and overlapping with each other when seen from the tops of the first and second daughter boards.

(Emphasis added)

The structure commonly defined by the foregoing, emphasized recitations of claims 1 and 2 is not disclosed in either of the Potter and Reimer references.

**THE POTTER AND REIMER REFERENCES**

Potter discloses a mother board 20, riser cards 12 (or a single riser card 30 in Fig. 3), and connectors 10 (or a single connector 34 in Fig. 3) for connecting the riser cards 12 (or single riser card 30 in Fig. 3) to the mother board 20. In Fig. 1, first and second expansion boards 14 are mounted horizontally to the respective riser cards 12. In Fig. 3, first and second expansion

boards 40 are mounted horizontally on opposite sides of the single riser card 30. Potter discourages use of a pair of riser cards (Fig. 1) and encourages use of a single riser card (Fig. 3). Potter at column 2, lines 51-55.

Reimer discloses a printed wiring board interconnect arrangement. The arrangement includes printed wiring boards 1 mounted on interconnect planes 14, 15, as shown in the Reimer figure. The interconnect planes 14, 15 are connected to a cross-connect board 51.

Potter discloses that a single riser card (alleged daughter board - - see, Figs. 2 and 3 of Potter) is advantageous over a pair of riser cards (see Fig.1 of Potter). See Potter, column 2, lines 51-55, and Fig. 3. Thus, the path set out in the Potter reference in order to "consume less space" is to reduce two riser cards to a single riser card.

This is different from the claimed invention which, instead, requires first and second daughter board. Thus, the path set out in Applicant's Specification in order to "increase memory capacity without an increase of space" is to use two daughter boards.

#### **POTTER (USP 6,533,587) TEACHES AWAY FROM THE CLAIMED INVENTION**

Potter discloses in Fig. 3 a mother board 20, a riser card 30, and a connector 34 for connecting the riser card to the mother board. The riser card 30 includes a circuit card 32 and first and second board connectors 36a and 36b mounted horizontally on opposite sides of the card 32. The board connectors include slots for receiving expansion boards 40.

As discussed in the prior response, Potter teaches "away from" the claimed invention. Potter discloses a single riser card 30 (a "daughter board") mounted on a motherboard 20 and mounting on opposite sides thereof two expansion boards 40 extending horizontally, parallel to the motherboard (see Fig. 2 and Fig. 3 of Potter). Potter asserts that a single motherboard is advantageous over a pair of riser cards 12 and 13 in the prior art device of Fig. 1 of Potter. (See, Potter, column 2, lines 51-55).

By contrast, the claimed invention employs two daughter (riser) boards: a first daughter board and a second daughter board as is set forth in the independent claims 1 and 2, set forth above.

A person of ordinary skill in the art, upon reading the Potter reference, would thus be led in a direction (a single riser card) divergent from, indeed contrary to, the path taken in Applicant's invention (two daughter boards).

Potter thus teaches away from the claimed invention and thus cannot serve to create a prima facie case of obviousness.

The Office Action acknowledges that:

Potter et al. does not disclose the mounting board of each of the board units that being positioned in different height, and overlapping with each other when seen from the tops of the daughter boards.

The Office Action attempts to overcome this deficiency in Potter as a teaching reference by relying on Reimer, contending that:

Reimer teaches an arrangement comprising first and second raiser boards (14, 15) connected to a board 51, each having an electronic board (1) positioned in different height, facing and overlapping with each other.

The Office Action further contends that it would have been obvious to combine Potter and Reimer "to provide an easy installation, save space, and easy to trouble shoot if one of the cards to be fails on test."

Applicants respectfully disagree. More specifically, in the sole Reimer figure, the alleged first electronic parts board 1 protruding from the alleged first daughter board 14, and the alleged second electronic parts board 1 protruding from the alleged second daughter board 15, do not face each other and do not overlap each other when seen from the tops of the alleged first and second daughter boards 14, 15, as is recited in independent claims 1 and 2.

Reimer states at column 2 lines 54-55 that [e]ach of the interconnect planes 12-17 includes a rear edge 21, a lower edge 22, an upper edge 23...." The upper edge 23, i.e. the top, of the interconnect plane 15 (alleged second daughter board 15) can be seen approximately in the center of the Reimer figure in the vicinity of the bottom of the upper backplane 36 and the top of the lower backplane 37. Thus, the interconnect plane 15 (alleged second daughter board 15) is in the lower half of the structure shown in the Reimer figure.

As viewed from the tops of the alleged first and second daughter boards 14, 15 of Reimer, the parts board 1 protrudes rightwardly from board 14 less than half the distance between boards 14 and 15. Similarly, the parts board 1 protrudes leftwardly from board 15 less than half the distance between boards 14 and 15. In other words, the rightwardly protruding parts board 1 and the leftwardly protruding parts board 1 do not protrude or extend by a sufficient distance so as to make them face each other, or overlap each other, when seen from the tops of the alleged first and second daughter boards 14, 15. Accordingly, Reimer does not

cure the deficiency of Potter to disclose the claimed feature of electronic parts mounting boards that face each other and overlap each other.

### **LACK OF *PRIMA FACIE* OBVIOUSNESS OF THE COMBINATIONS OF REFERENCES RELIED UPON**

It is submitted that the Action fails to satisfy the requirement of a *prima facie* demonstration of obviousness of the combination and, instead, relies on the discredited bare contention that the combination “would have been obvious to one of ordinary skill in the art....” Moreover, motivation to effect the combinations is not supported by the Examiner’s suggestions. See MPEP 706.02(j), which emphasizes that the Examiner should set forth in the Office Action: (A) the relevant teachings of the prior art relied upon, preferably with reference to the relevant column or page number(s) and line number(s) where appropriate, (B) the difference or differences in the claim over the applied reference(s), (C) the proposed modification of the applied reference(s) necessary to arrive at the claimed subject matter, and (D) an explanation why one of ordinary skill in the art at the time the invention was made would have been motivated to make the proposed modification.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). See MPEP § 2143 - § 2143.03 for decisions pertinent to each of these criteria.

### **CONCLUSION**

It is respectfully submitted that the foregoing has demonstrated that the independent claims 1 and 2 distinguish patentably over the references and rejections of record. The remaining, dependent claims depend from claims 1 or 2 and inherit the patentable limitations thereof and correspondingly as well distinguish.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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By: /H.J. Staas/  
H. J. Staas  
Registration No. 22,010

1201 New York Avenue, NW, 7th Floor  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501